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AUTHOR Boyd, William Lowe; Cline, Harold
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ABSTRACT

In order to assess the performance of vocational education in Rochester, New York, it is first necessary to consider the city's major economic and demographic trends. On the one hand, Rochester is a center for highly technical industries that are expected to experience a very slow rate of growth. On the other hand, it is characterized by an increasingly disadvantaged minority group central-city population. It is precisely this central-city population from which most of the city's vocational education participants come. Only one vocational high school exists in the city, and interviews with school administrators indicate that the vocational education program in the regular secondary schools is rather limited and rudimentary in character. The city's adult level vocational education program is assisted by the presence of several colleges and universities. In addition, a number of Comprehensive Employment and Training Act (CETA) programs provide adult vocational education opportunities. Analysis of the city's economic climate, demography, and existing vocational education programs reveals the following needs areas: improved counseling and recruitment efforts, increased concentration on postsecondary programs, more emphasis on generalizable skills, and efforts to improve the image of the city's vocational education program. (MN)

# VOCATIONAL EDUCATION IN A TECHNICAL LABOR MARKET:

# RHETORIC AND REALITY IN ROCHESTER, NEW YORK

by

William Lowe Boyd
The Pennsylvania State University

Harold Cline
University of Rochester

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# VOCATIONAL EDUCATION IN A TECHNICAL LABOR MARKET: RHETORIC AND REALITY IN ROCHESTER, NEW YORK*

William Lowe Boyd
The Pennsylvania State University

Harold Cline
University of Rochester

At the dedication, on May 4, 1980, of the impressive new campus for the Edison Technical High School in Rochester, Mayor Thomas Ryan observed that there is "probably not another high school in the country that plays as important a role in its city's economy." Other guests of honor at the dedication expressed similar views on the importance of the school and, more broadly, of vocational education for the future of Rochester's economy.

Although it is common for speakers to make sweeping and exaggerated statements at such ceremonial occasions, there is a rather widely shared belief in Rochester that effective vocational education is vital for the city's future due to the highly technical nature of the city's industry. Our review of the status of vocational education in Rochester, however, points to a significant gap between the rhetoric of vocational education for technical industry and the reality of the employment opportunities for high school graduates in the city. To anticipate our findings, we conclude that the concern about providing vocational education to meet the needs of technical industry, while well-intentioned and appropriate to a degree, tends to divert attention from the real employment situation

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facing young workers, and may be inhibiting needed adjustments in the vocational education program.

Of course, the social and political significance of the prevailing view is easy to understand: It clearly is important to maintain some thread of continuity and connection between the diverging character and needs of, on the one hand, Rochester's highly technical industry and, on the other hand, its increasingly disadvantaged, minority group central-city population. Ideally, Rochester needs a vocational education program that is so effective that it could help close the gap between these diverging sectors. Yet, we believe that the reality of the situation presents a more complex picture than this, a picture that suggests that a reformulation of the problem is needed.

It is this task that provides the central focus of this paper. We shall first describe economic and demographic trends in Rochester, concentrating on its labor market and educational system. Then, a description of vocational education programs will follow with an analysis of the recruitment and placement of participants. Finally, conclusions about the performance of vocational education in Rochester and several policy suggestions will be presented.[1]

## The Character of Rochester's Economy and Population

In its early years, Rochester's growth as a city resulted from its advantageous location to water power (for milling) and water navigation (the Erie Canal and Lake Ontario). In this century, Rochester has become noted as a center for highly technical industries, particularly photographic and optical firms, largely due to the spectacular growth of George Eastman's Kodak Company and its influence in creating and

attracting other allied firms. About fifteen percent of Rochester's workforce is employed by Kodak, and many additional workers are engaged in jobs somehow related--directly or indirectly--to Kodak. Although the phenomenal development of the Xerox Corporation helped to diversify Rochester economically--and socially, particularly before Xerox's corporate management relocated in Stamford, Connecticut--it is a common observation in Rochester that George Eastman's influence is still very much in evidence.

Eastman helped to make Rochester a progressive city in many respects. He was a generous supporter of the arts and educational institutions and also helped to found in Rochester one of the first bureaus of municipal research. From the point of view of employment and vocational education, Eastman's influence is felt in several key ways. First, by managing to avoid unionization of its workforce, Eastman Kodak set a pattern which has minimized the influence of labor unions in the city of Rochester. Second, as we have already stressed, Kodak's presence contributed to the highly technical character of Rochester's industry. Finally, George Eastman helped to found, in 1916, the Industrial Management Council of Rochester, an association of manufacturing firms that continues today to influence personnel and employment practices and to take an interest in vocational education and training.

No discussion of our subject could convey an adequate sense of the context in which policy for vocational education in Rochester is made without describing the role and influence of the Industrial Management Council. In 1979, the IMC consisted of 132 member companies whose plants employed over 132,000 people. Of the 132 companies, 77 employed under 250 employees. The IMC employs a president and a small professional

staff and has a policy-making board, made up of the chief executive officers of many of the area's leading firms, that meets six to seven times a year. The Council issues reports and makes pronouncements on policy issues of importance to its membership. It states that it has four objectives:

(1) to help develop and maintain sound employer-employee relations;

(2) to assist its members in obtaining maximum of efficiency by providing them with a channel of communication through which to explore, develop, and exchange productive ideas;

(3) to develop better understanding and improve communications between industry and other segments of our society, especially state and local government, and community institutions;

(4) to maintain a progressive personnel research and statistical program that will provide member firms with accurate, up-to-date information on which to base sound personnel policy and practice.[2]

Because the IMC's influence on vocational education is more indirect than direct, administrators in the City School District are inclined to say that its impact has become exaggerated in the public's mind. Yet, it is precisely the IMC's prestige and ability to command attention from the media that help promote the saliency of the idea that Rochester's industry and concomitant labor needs are so highly technical.

Interestingly, in a 1974 newspaper article assessing Rochester's power structure, the author, the financial editor of the Democrat and Chronicle, concluded by saying that in addition to his list of the ten most influential persons there were two other important forces--the Community Chest and the Industrial Management Council:

> As described by several very high level local executives, the purpose of the IMC is to control wage rates in Rochester. This has been a labor-poor market, one with many jobs and not enough workers (except in recessions, of course).[3]

The dominance of a few large firms in Rochester's industry has frequently led to accusations of paternalism and elite control over its cultural and educational institutions. What the real effects are of this dominance is impossible to say. However, whatever the purposes of the IMC actually are, there is no question but that it has significant influence on the character of vocational education in Rochester. The IMC was a staunch supporter of the movement to create a new, more up-to-date and sophisticated Edison Tech. Moreover, IMC's president, John Hostutler, has been a vocal proponent of the view that Edison needs to have high standards for admission and graduation. As he noted in his brief remarks at the dedication of the new campus, "We hope the standards will be so high it will be hard to get into this school."

More substantively, the IMC has sponsored two important programs to improve vocational education, one of which emphasizes preparation for technical occupations. The Rochester Area Career Education Council (RACEC), a county-wide program begun in 1976, has as its purpose "to promote an educational concept that shifts the emphasis of our schools from learning for learning's sake to preparing students in practical as well as academic ways for a useful, productive and self-fulfilling life style of their choice." This program is funded jointly by area school districts and the IMC. The Program for Rochester to Interest Students in Science and Math (known as "PRIS$^2$M"), on the other hand, is funded entirely by Rochester industries. It originated in 1978 and its goal is "to increase the number of minorities entering the field of engineering and related professions." Both PRIS$^2$M and RACEC have their own staff located in the IMC offices. Activities in the two programs have included summer internships for teachers and students; preparation

of a community Resource Directory for teachers and counselors; plant visits to help students understand the relevance of education to employment; and a graduate course in career insights for educators.

Although the IMC and leading industries in Rochester continue to take considerable interest in improving vocational education in the city, some observers feel that civic and business leaders have almost entirely ceased to provide leadership for the betterment of the city school district in general. Indeed, a recent newspaper assessment of the city's power structure--"Does Anyone Run Rochester?"--deplores the leadership vacuum that now seems to plague Rochester's civic affairs generally.[4] The article reports developments that have occurred in a number of cities since the advent of the "Great Society" and "War on Poverty" programs of the 1960's: the decline of the power of city businessmen concomitant with the rise in influence of neighborhood associations, the opening up of the political decision-making process to greater public scrutiny, and a changed attitude about the propriety of business leaders shaping public decisions. The president of the Urban League of Rochester, William Johnson--who has been trying with little apparent success for several years now to involve business and industrial leaders in an effort to reform Rochester's schools--is quoted in the article as saying that an effort in 1979 to put together a slate to run for the school board fell through for lack of a businessman willing to run. "The problem," Johnson said, "was that people didn't see how serving on the school board would enhance their career, and in fact they thought it would [lead] to the demise of their career." To the extent that, as Johnson believes, the city schools are in trouble, and are suffering from a lack of attention and help from civic and business leaders, a focus on the

improvement of vocational education may be insufficient.[5] Moreover, the success of vocational education is itself dependent on adequate basic education in regular schooling, and Johnson believes that the city's schools are failing to provide this for large numbers of their students.

Labor Market Trends

Rochester's labor force is determined by the character of Rochester's industry. In the five counties of Rochester's Standard Metropolitan Statistical Area, there were approximately 457,000 employees in 1978 out of a population of roughly 1,126,000 in 1976. Of these employees, 37.8% are in manufacturing, of which three-fourths is skill-intensive durable manufacturing (29.5% of total employment). Instruments and electrical machinery make up a large proportion (76%) of durable manufacturing. Rochester also has a large government sector, 14.6% of the labor force, and a finance community comprising an additional 4.0% of the labor force. Both areas are employers of well educated manpower. In addition, 6.2% of the labor force is in construction or transportation, employers of skilled blue-collar workers.

With the concentration of Rochester's industry in technical areas, it is no surprise that the occupational distribution is biased towards professional and technical manpower. A large proportion (24.2%) of the labor force are professionals, and an additional 14.1% are craftsmen.[6]

In manufacturing, industry is extremely capital-intensive, and labor is highly productive and highly paid. In 1977, the value-added per employee was $49,800 for Monroe County, just about the highest for any of the major manufacturing centers in the nation. Average earnings per week were $297.35 in 1978, and personal income per capita was a high $7,164 in 1976.[7]

Despite the city's location in the Northeast, an area subject to the relocation of industry to the "sunbelt," Rochester's employment has remained fairly stable. New York State lost 380,000 manufacturing jobs during the seventies, but, as the IMC reports with relish, during this decade,

> Rochester developed a new job for every old one it lost, finishing the decade virtually even. Dozens of new high-technology companies in the communications, instrumentation and computer fields were born and grew during this period. They add to the strong base formed by the photographic, office products, optical and automotive industries which assure this community of a bright future.[8]

During this period, there was some employment fluctuation due to the recession, with manufacturing employment dipping about 10% below previous years for 1971-1972 and 1975-1977.[9] However, recession had relatively minor effects on Rochester, and the unemployment rate grew to only 8.2% during the height of the recession of 1976. During 1979, unemployment was only 4.8%. Another indication of the strength of Rochester's labor market is the fact that average weekly earnings increased 22% from 1970 to 1979, after correcting for inflation.[10]

If Rochester has a labor market problem, it is generally thought to be a shortage of skilled labor. Approximately 20,200 annual job openings are expected on average in the Rochester area by 1985. Of these, 23% are a result of employment growth, and not labor force separation. Rochester's employment growth rate for 1978-1985 is projected at 13%, well above the State's 5% projection.

However, a closer look reveals that fast growth is not expected in traditional vocational education areas. The fastest growing areas are clerical workers (21.0%) and service workers (17.5%), but fast growth is also expected among professional, technical and kindred workers (14.7%) and managers, officials, and proprietors (13.9%).

Traditional skilled blue-collar jobs, however, face relatively slow growth. Craftsmen will grow 12.7% and operatives 3.2%. Laborers, generally unskilled, will grow much faster at 14.7%.[11] While the overall fast growth of employment is encouraging for the demand for vocational education and the placement of its graduates, traditional areas of placement are growing relatively slowly. Part of the explanation is the relative stability of manufacturing employment.

An examination of the growth rates of specific occupations is revealing. A list of fast-growing occupations provided by the State Department of Labor shows that in the blue-collar fields, highly skilled, highly specialized workers are in the greatest demand. Tool and die workers, office machine repairers, opticians, and metal workers are examples. Most of the fast growing occupations are in service and office work.[12] Significantly, vocational education in the public schools may not provide the required skills to enter these types of positions.

Another survey, compiled by the Industrial Management Council, shows vacancies in 1977 and 1978 for some sixty participating firms. Vacancies were only about 1% of employment in the survey month, or 1361 in 1978. In 1978, 47% of the positions were professional and technical jobs, clearly outside the skill level of vocational education graduates. Thirty-three percent were skilled and semi-skilled jobs. Of these, tool and die makers, machine repair and maintenance, machine operators, and assemblers and inspectors were the most important. There were only nine apprentice positions for skilled jobs. These positions would be the natural entry points for vocational education graduates.[13]

A final comparison should be the numbers of occupational graduates in particular fields and the numbers of openings. This comparison will

not be perfect, as there may not be a match between the skills demanded by the job and those possessed by the graduates. In Table 1, projected new openings, replacements, and the number of graduates in different fields are given. When the number of graduates relative to numbers of total openings is compared, in the last column, a measure of the tightness of each field can be seen. While health, home economics, and office graduates face a wealth of opportunity, graduates in technical, agriculture, distribution, and especially trade and industry, face tighter markets. There are approximately two or three jobs for each graduate in the technical, agriculture, and distribution fields, but more than two graduates for every opening in the trade and industry fields. This category includes such traditional vocational education areas as auto mechanics and carpentry. This analysis clearly suggests that Rochester's vocational education should be directed more closely to where the jobs are. This can be accomplished by the redirection of programs and systematic career guidance.

In sum, it appears that while Rochester's labor market is stong, growth is eluding the skills where vocational education usually has aimed. Despite Rochester's technical and manufacturing dominance, these areas are not growing at the rate that service and office fields are. While Rochester's economy is diversifying, so should its emphases in vocational education.

Population Trends

Rochester has been subject to many of the same demographic trends experienced by most cities of the Northeast. There has been a fast rate of population decline in the center city and the remaining population has been composed increasingly of minority groups and the poor (see Table 2).

Table 1. Annual Average Openings, 1980-85, and Graduates from Occupational Education, 1979-1980, by Field.

| | Total Openings | | | |
|---|---|---|---|---|
| | New Openings | Replacements | Graduates | Graduates Divided by Openings |
| Technical | 279 | 785 | 458 | .43 |
| Agriculture | 27 | 255 | 93 | .33 |
| Distribution | 340 | 1636 | 617 | .31 |
| Health | 295 | 512 | 177 | .22 |
| Home Economics | 310 | 1191 | 78 | .05 |
| Office | 2267 | 7750 | 804 | .08 |
| Trade & Industry | 165 | 357 | 1198 | 2.30 |

Source: Data drawn from Occupational Education: Past, Present and Future, 1979-1980. Department of Career, Occupational and Continuing Education, Rochester City School District, pp. 20-40.

Table 2

Population Composition Trends in Rochester

| | 1960 | 1970 | 1978 | 1983 |
|---|---|---|---|---|
| White | 91.82% | 80.17 | 61.2 | 52.0 |
| Black | 7.4 | 16.3 | 24.9 | 30.0 |
| Spanish | 0.6 | 2.7 | 12.4 | 16.0 |
| Other | 0.2 | 0.8 | 1.5 | 2.0 |
| Total Population | 318,611 | 296,233 | 248,908 | 218,467 |

Source: Occupational Education: Past, Present and Future, 1979-1980. Department of Career, Occupational and Continuing Education, Rochester City School District, pp. 1 and 373.

In 1960, Rochester had a population of 318,611, but decreased at a rate of 0.76% a year or a loss of 2,238 people each year during the sixties.[14] The rate of decrease rose to 2.4% from 1970-78 or an average loss of 5,916 people a year. The projected decrease for the five-year period, 1978-1983, is greater: 2.6% a year and 7,088 people a year.[15] In simple terms, in the twenty-three years from 1960 to 1983, the population of Rochester will decrease by one-third. Much of the population shift has been to surburban areas; however, since the city school district's boundaries are identical to the city's boundaries, population changes in the city are most significant.

Much of this population loss has occurred among whites, for in the period from 1960-78 the percentage of whites fell from 91.8% to 61.2%. At the same time, the percentages of blacks rose from 7.36% to 24.9%, largely as a result of migration from the southern states. The hispanic population was only a tiny 0.62% of the population in 1960, but has become a sizable body of 12.4% in 1978. In the projected five-year period 1978-83, this trend is expected to continue with black population growing to 30% and hispanics to 16.0%. The minority groups will then be roughly half of the city's population.

The dramatic population decline and its changing composition has far-reaching implications for the city's public schools and, more specifically, for vocational education programs. Along with a general decline in the birth rates, the movement of families from the city caused a dramatic decrease in the public school enrollments (see Table 3). Total enrollment in 1978-1979 was 36,983. The next year the public schools had 1,482 fewer students, or a drop of 4.1%. It is expected that in the four-year period from 1979-83 enrollments will fall at the faster

Table 3

Public School Enrollment
in Rochester City School District

| | 1978-79 | 1979-80 | 1983-84 |
|---|---|---|---|
| Enrollment Total | 36,983 | 34,943 | 28,843 |
| K-8 | 25,170 | 23,530 | 18,960 |
| 9-12 | 8,763 | 8,363 | 6,833 |

Source: Occupational Education: Past, Present and Future, 1979-1980. Department of Career, Occupational and Continuing Education, Rochester City School District, p.373.

rate of 4.8% or 1,525 students a year. The changing composition of the city's population, differing birth rates among ethnic groups, and the increased use of private schools by whites, have placed a high concentration of minority groups in the city's schools. Blacks were 46.7% of total enrollments in 1978-79 and hispanics were 8.8%. These percentages are expected to increase in the following five years to 48.5% and 11.5% respectively.

The population change in the city of Rochester has been accompanied by lowered average income and a falling tax base. In 1972, the city's per capita income was $3,716, compared to $5,366 for the county. While in 1970, 41.6% of the county's population lived in the city, the city's assessed property valuation was only 40.4% of the county's.[16] This poorer tax base, compounded with greater service needs, resulted in a much higher tax rate in the city. For example, in 1972, the per capita property tax was $210 in the city, but only $142 in the county as a whole. Fifty-two percent of the revenue raised went to education in the county.[17] Lowered income has increased the need for social services aimed at the problems of poverty, but has also reduced the tax base necessary to provide for it. These problems are greater for the city since it has a much higher concentration of the poor. In 1969, 11% of Monroe county's families had incomes less than $5,000, while 18% of Rochester's families, and 41% of the families residing in the central business district, had such incomes. The need for social services takes away from the revenue available for education in the city. This has made school funding difficult, especially in light of the increased costs of education.

The population change has also been accompanied with a movement of jobs to suburban areas, increasing the difficulties of the central city's

poor. The trends in movement of industry and population have reinforced one another, as the increased suburban population demands goods and jobs close to home, and the increased taxes and urban blight of the central city have made the city less desirable for business. Unlike many north-eastern cities, Rochester's population was never highly concentrated. Kodak and other industry tended to locate just outside or at the edge of the city's boundaries.

Demographic trends have led to a high concentration of disadvantaged students in the city schools. For the secondary grade span from seventh through twelfth grade, 33.8% of the students met the federal low income criteria in 1978-1979.[19] In the same year, 13.6% of the students had some form of mental or physical handicap. About half of these are serious handicaps. The percentage of handicapped students is expected to rise to 19.2% in 1983-84, nearly one-fifth of all students.[20] The learning difficulties of students are perhaps indicated in the evaluation of their progress. In 1978-79, 21.6% of the students were considered reading disadvantaged, and 8.9% were considered to have math disadvantages.[21] While only suggestive, it seems clear that there are extra difficulties in teaching the students of the Rochester city schools.

## Vocational Education in Rochester

The history of vocational education in the Rochester City School district is almost synonymous with the history of Edison Tech, the city's only vocational high school.[22] Because of this, we shall begin with a discussion of the situation at Edison and then will move to a description of the other components in the program.

The Program at Edison Tech

The Rochester Factory School, the predecessor of Edison Tech, was opened in 1908 and was the first vocational education high school in New York State. In ensuing years the name and site of the school were changed several times. Over the years the school was generally housed in rather makeshift facilities. Beginning in 1963, plans were developed for the long desired modern, custom-designed plant for the school. The new Edison Technical and Occupational Education Center, which was opened on September 4, 1979, is located on 30 acres in the Outer Loop Industrial Park in northwest Rochester. The building, which cost $19,413,000, was designed for 1,500 full-day academic-occupational students and an additional 1,400 students (700 in the morning and 700 in the afternoon) can be served in a part-day occupational program for students wishing to remain in their home school for their academic work.

For many years, Edison Tech's student body was almost entirely white males. Moreover, a well-placed informant stated that 60-70% of Edison's enrollment used to come from parochial schools. He described these students as white ethnics "who couldn't get into Aquinas," one of the leading parochial high schools in Rochester. This situation resulted in large part because in the late 1950's and early 1960's Edison had a rather restrictive written entrance examination and "no blacks or women got in." As another informant put it, "poor blacks were not even trying to come to Tech in the 1960's. It was almost all white as late as the 1968-69 school year and it was all male, too."

As a result of unrest with this situation, the entrance exam was thrown out and Edison went to a "first-come, first-serve" basis for admission. However, the staff at other schools took advantage of this

system: To get rid of problem students, the staff would try to get them quickly enrolled in Tech so that they would be admitted. This led to a "dumping ground syndrome" and in self-defense the Edison administration began to use a standardized reading rate score and later added the use of a math score also for admission decisions. Presently, Edison uses a more systematic procedure that involves the use of an admissions committee of three people who each rate applicants on a point scale on their school attendance record, test scores and report card grades.

In recent years, Edison's student body has become much more diverse. Table 4 presents data showing the proportion of black and spanish surnamed students at Edison from 1970 to 1976. Both groups were still under-represented at Edison in recent years. In 1976, blacks constituted 43.6% and Spanish-surnamed students 7.5% of all the secondary students in the system.[23] In 1978-1979, out of a total enrollment of 1,060 at Edison, 35.5% were blacks, 3.8% were Spanish surnamed, 60.2% were caucasians, and 23.5% were females.[24] In that same year, blacks constituted 24.9% of the city's population and 46.7% of the school system's enrollment, while Spanish-surnamed persons constituted 12.4% of the city's population and 8.8% of the school system's enrollment.[25]

It is clear that the program available at Edison Tech, which offers instruction in nine areas -- auto/aero power; business/marketing; construction; graphic arts-printing; human services; health, mechanical; electrical; science -- is much more sophisticated than that available at the other secondary schools, where options and supporting facilities are limited to those associated with business education, home economics and industrial arts. Since Edison Tech can only serve a fraction of the city's 9th-12th grade students, it is important to ask, who goes to Tech?[26]

Table 4. Representation of Black and Spanish Surnamed Students at Edison Tech, 1970-1976.

| Year | % Black | % Spanish Surnamed | Total Enrollment |
|---|---|---|---|
| 1970 | 7.8 | 3.8 | 1032 |
| 1971 | 8.6 | 4.3 | 1029 |
| 1972 | 10.4 | 3.7 | 1196 |
| 1973 | 11.6 | 5.0 | 1178 |
| 1974 | 15.4 | 5.4 | 1113 |
| 1975 | 22.1 | 4.3 | 1102 |
| 1976 | 26.6 | 4.9 | 1070 |

Source: Annual Statistical Report, Volume 1, "Enrollment, 1970-1976," Department of Planning, Research & Evaluation, Rochester City School District, November, 1977, p. 138.

The answer seems, in large part, to have relatively little to do with intended purposes of the school. Several informants agreed that Tech serves in part as an alternative high school for students who want to avoid going to other city high schools that have gotten bad reputations. Furthermore, attendance at Tech is significantly affected by the grade organization structure in the school district. The usual grade arrangement at the city's secondary schools is grades 7-12, but Tech is a 9-12 school. Thus, according to a well-placed informant, the bulk of Tech's students come from the three junior highs (Wilson, Douglas and Interim) since these students, unlike those at the 7-12 secondary schools, have to move to another school in any event.

As we have indicated, although Edison Tech is the key component in Rochester's vocational education program at the secondary level, its impact is limited by the number of students it can serve. Moreover, in the first two years of the use of the new facility, Edison has been under-enrolled, particularly in terms of the part-day program. Rather than the full capacity of 1,500 full-day and 1,400 part-day students, in 1980-1981 the enrollment was said to be about 1,200 full-day and 600 part-day (i.e., about 300 in the morning and 300 in the afternoon) students. Because of the heavy emphasis informants placed on Edison's role in vocational education in the City School District, and what they saw as the consequent limited nature of vocational education opportunities at other secondary schools, we naturally were led to ask why such an attractive new facility would be under-subscribed.

The most frequent answer we received was that the new Regents' competency test requirements for graduation were interfering with attendance in Edison's part-day program. This was said to be the case

since a number of students who otherwise might be in this program now have to take remedial classes on top of their regular academic classes and consequently do not have enough time left in their school day for the half-day program. Another answer was that the distance to Edison Tech and the time required for riding buses to get there might be discouraging factors. A third answer given was that the increasing competition for students, in the face of declining enrollments, might be causing educators to try to hang onto students for their own schools' enrollments.[27] Finally, it was pointed out that Edison's part-day program might be suffering from the legacy of the poor reputation of the decentralized part-day program it has superseded. Until the opening of the new Edison facility, the part-day vocational education program was delivered through three "annexes" located around the city. This "annex" program had a bad reputation for being a "dumping ground" for less able and less motivated students. As a consequence, some counselors still may hesitate to send "average" students to the part-day program even though it is now offered at Edison.

Interestingly, in regard to the concern that the part-day program at Edison is "under-enrolled," one administrator pointed out that while the district used to report having over 1,000 students a year in the annex program,[28] he had made inquiries among the drivers who drove the buses to the annexes and had found that in reality only about 500 students were being transported each year. He accounted for the discrepancy by the fact that the district used the initial enrollment figures, regardless of the number of subsequent drop-outs, as the "number serviced" for reporting purposes. This dramatic insight into the divergence between official statistics and "real" numbers suggests that we perhaps should

interpret all of the statistics furnished in offical reports with caution and a degree of skepticism.[29]

Another important point that came out of our inquiry into the under-enrollment of Edison's part-day program was that the inability to service more students is partly a result of how short the school day is. At both Edison and the other secondary schools, school is over, except for athletics, at 2:15 p.m. Although the day begins at 7:30 a.m., this early closing time clearly constrains what can be accomplished beyond what seems reasonable. If it were possible to extend the school day, either through flexible scheduling of students and teachers or through additional funding, students would have time for a part-day program at Edison in addition to their academic and remedial classes. Furthermore, it would be far more efficient to make greater daily use of the outstanding Edison facility. In February 1981, we were told that nothing was going on at Edison from 2:15 to 7:00 p.m. daily, although a new program in diesel auto mechanics for thirty CETA workers was supposed to begin in a month or so, running from 3:00 to 9:00 p.m. daily. From 7:00 to 10:00 p.m. on Monday through Thursday evenings, there is an adult night school at Edison, mainly offering vocational education instruction. The facility is also used for a variety of programs each summer.

The Pre-Secondary and Comprehensive Secondary School Programs

In the Rochester City School District there has been an effort to integrate a career guidance education program into the complete educational program, kindergarten through 12th grade. This is claimed to be a model program -- at least on paper -- that people elsewhere have emulated. One shortcoming in its implementation that several informants mentioned is a lack of sufficient guidance counselors to meet the needs

of the student population.

At the elementary level, instruction in art, home economics and industrial arts is integrated, with a Unified Arts program combining creative and industrial arts. This approach results at least in part from the realities of limited resources and staffing cutbacks.

At both the elementary and early secondary levels, the City School District's career education plan emphasizes efforts to end sexual and ethnic stereotyping of different occupations. At the 7th and 8th grade levels, students may take an exploratory program in business education and home economics/consumer education. Also, ninth graders who choose to go to Edison Tech full-time (and are admitted) may take a career exploratory program to assist them in determining the program/career areas they wish to pursue at Tech in subsequent years. Students may opt to go to Edison on a part-day basis without having to meet any entrance requirements. This part-day program begins at the 10th grade, but is described as being mainly for 11th and 12th graders.

Based on our interviews with school building principals, our impression is that the vocational or occupational education program[30] in the regular secondary schools is rather limited and rudimentary in character. However, as noted earlier, this is consistent with the widely held view that Edison (in earlier years, the annexes and Edison) makes available the really significant vocational education for those who need or desire it. At the other secondary schools, vocational education consists of a sequence of courses over grades 9-12 in business education and home economics. In contrast to instruction in industrial arts, which also is available, instruction in business education and home economics offers a graduated program of skill development beginning at

grade 9. For example, students can take two years of typing, two years of record-keeping, and can get instruction in bookkeeping, accounting, business law and business machines.

The most significant aspect of vocational education at the regular secondary schools probably is provided through some quite small and limited programs which help students get jobs and/or on-the-job training. In a typical example, at one high school a "co-op" program enables about twenty students to work half a day in business or industry, to go to school the other half of the day, and to get paid for their work. A somewhat similar program involves about sixty students in part-time jobs, but ones that are less skilled, more entry level, routine jobs. A staff member specializing in occupational education is at the school on a half-time basis, working with students and helping to place them in jobs.

The school district is about to change its secondary education structure in ways that will affect vocational education. The plan is to move to four comprehensive high schools and three to four magnet schools. As one aspect of this, there will be a business education magnet next year that will offer, in collaboration with Wegman's Super Markets, a store manager training program for twenty-five students. This program will also be linked to the retailing program at Monroe Community College. Although we have very few details about the new structure for secondary education, we are left with the impression that the programs which effectively bridge the gap between school and the world of work still will involve very small numbers of students.

Analysis of Participation in the City School District's Occupational Education Programs

The city's occupational education program at the secondary level is

designed to serve three categories of students: regular, disadvantaged and handicapped. The Department of Career, Occupational and Continuing Education's report, Occupational Education: Past, Present and Future, 1979-1980, devotes 125 pages to description and data on the city's secondary occupational education programs. The simplest way to summarize these programs is by reference to Table 5 (drawn from the report) which presents aggregate data on participation in the twleve program areas offered. In Table 5, one can see that, although progress has been made in reducing sexual stereotyping in occupational education, the traditional sex role divisions are still clearly in evidence.

There are two difficulties in the interpretation of these enrollment statistics. First, the sizeable overlap of programs and diversity in the nature and targeting of programs, creates problems of double-counting and over counting. Secondly, the extent of enrollment of an individual is hard to measure, since participation may consist of a single course or a full-time enrollment.

Trends in secondary student enrollment and funding for occupational education from 1971 to 1979 are shown in Table 6. It must be remembered that these figures include all participants in classes, with sizeable overlap among programs, though special education programs have been deleted. The rapid expansion of enrollment of 8.7% per year is remarkable, considering the general decline of secondary school enrollments. This expansion is a result of the addition of new programs and of additional funding at federal and state levels of government. During the latter portion of this period (1975-79) the rate of growth decreased somewhat.

Perhaps a more reliable statistic is that of the number of students to complete the program in June, 1978 of 1,245. At the same time, total

Table 5. 1978-1979 Secondary Occupational Education Ethnic Enrollment Percentages

| Occupational School/Program | Female | Male | Asian | Native American | Black | Spanish Surnamed | Caucasian | Totals |
|---|---|---|---|---|---|---|---|---|
| Business Education (Grades 7-12) | 66.3% | 33.7% | .3% | .5% | 47.5% | 8.6% | 43.1% | 7,232 |
| Community Education Center | 50.0% | 50.0% | -- | .5% | 68.4% | 18.6% | 12.5% | 400 |
| Diversified Occupational Cooperative Education (Grades 11-12) | 56.5% | 43.5% | -- | .3% | 42.2% | 6.0% | 51.5% | 619 |
| Edison Technical and Industrial High School (Grades 9-12) | 23.5% | 76.5% | -- | .5% | 35.5% | 3.8% | 60.2% | 1,060 |
| High School Annex for Occupational Education (Grades 10-12) | 47.4% | 52.6% | .3% | .6% | 46.3% | 8.2% | 44.6% | 1,096 |
| Home Economics (Grades 7-12) | 64.7% | 35.3% | .6% | -- | 64.6% | 10.1% | 24.7% | 7,744 |
| Industrial Arts (Grades 7-12) | 38.7% | 61.3% | .1% | .2% | 49.6% | 5.5% | 44.6% | 9,339 |
| Operation Young Adults (Grades 7-12) | 31.7% | 68.3% | -- | .7% | 53.1% | 6.9% | 39.3% | 145 |
| Special Education (Grades 9-12) | 41.9% | 58.1% | .3% | -- | 24.7% | 20.0% | 55.0% | 365 |
| Summer Occupational Education (Grades 10-12) | 51.3% | 48.7% | .5% | .2% | 54.0% | 11.9% | 33.4% | 1,298 |
| SHIFT | 15.5% | 84.5% | -- | -- | 59.5% | 4.3% | 36.2% | 116 |
| Work/Study (Grades 11-12) | 43.0% | 57.0% | 1.6% | 1.6% | 56.2% | 6.2% | 34.4% | 128 |

Source: Occupational Education: Past, Present and Future, 1979-1980. Department of Career, Occupational and Continuing Education, Rochester City School District, p. 210.

Table 6

Budget and Enrollment for Occupational Education

Secondary Level

| | Enrollments* | Local Effort** | State & Federal# | Total | % Local |
|---|---|---|---|---|---|
| 1964-5 | -- | -- | 202,684 | -- | -- |
| 1965-6 | -- | -- | 306,274 | -- | -- |
| 1966-7 | | 1,364,200 | 458,700 | 1,822,900 | 74.9 |
| 1967-8 | -- | 1,471,156 | 450,675 | 1,921,831 | 76.5 |
| 1968-9 | -- | 1,901,296 | 450,672 | 2,351,968 | 80.8 |
| 1969-70 | -- | 1,939,327 | 540,000 | 2,479,327 | 78.2 |
| 1970-1 | -- | 2,285,973 | 1,025,554 | 3,311,347 | 69.0 |
| 1971-2 | 14,157 | 2,417,464 | 1,374,189 | 3,791,653 | 63.8 |
| 1972-3 | 14,690 | 2,655,233 | 1,289,635 | 3,944,868 | 67.6 |
| 1973-4 | 19,321 | 3,005,188 | 1,715,265 | 4,720,453 | 63.7 |
| 1974-5 | 26,050 | 3,688,503 | 2,315,662 | 6,004,164 | 61.4 |
| 1975-6 | 32,417 | 3,871,887 | 1,900,670 | 5,772,557 | 67.1 |
| 1976-7 | 27,112 | 3,739,901 | 1,700,486 | 5,440,387 | 68.7 |
| 1977-8 | 26,348 | 4,365,297 | 2,116,269 | 6,481,586 | 67.3 |
| 1978-9 | 29,189 | 4,409,251 | 1,779,764 | 6,189,015 | 71.2 |

Source: Occupational Education: Past, Present and Future, 1979-1980. Department of Career, Occupational and Continuing Education, Rochester City School District, pp. 208, 384-5.

*Secondary School Enrollment for Occupational Education. (does not include special education; enrollment in single courses as well as programs)

**Local Budgeted Funds for Occupational Education (Full and Half-day Programs) High School Annexes and Edison Tech. only.

#New York State and Federal Aid for Vocational Education Projects Instruction/Program Improvement/Supportive Services.

enrollment for all secondary students in vocational education classes was 5,407.[31] The far smaller number indicates those who were seriously committed to a single program, with overlaps eliminated. These numbers suggest that of the roughly 13,717 students in grades 7-12, about one-third took vocational education classes and less than ten percent were serious participants.

These students differ greatly from non-participants. Of the participants, 53.2% are minority group members, while only 42.5% are women.. As for educational and economic disadvantage, 42.2% of the vocational education students have a reading disadvantage and 24.5% have math disadvantages. Over half (50.3%) are economically disadvantaged according to Title 1 criteria. In addition, most of the mentally and physically handicapped are placed into special and occupational education programs.[32]

Vocational education is also aimed at adults in the Rochester community. The need develops out of inadequate or insufficient educational services in the past, and the need for many adults to learn new skills to adapt to changing market conditions. The line between adult vocational education and manpower training often becomes quite thin. The educational need is clear by the fact that, of the population 19 years old and above in 1970, 53% did not have a high school education, 17.7% had less than an eighth grade education, and 2% had no formal education. The city's unemployment rate of 7.1% in 1978 indicates the need for skill training.

Participation in the City School District's adult education programs is summarized in Table 7, which presents data on sixteen programs that are offered. Vocational education was provided to approximately 7,500 adults in 1978 with a rapid increase to about 10,000 projected in 1984.[33]

Table 7. 1978-1979 Adult Education Ethnic Enrollment Percentages

| Occupational/ School Program | Female | Male | Asian | Native American | Black | Spanish Surnamed | Caucasian | Totals |
|---|---|---|---|---|---|---|---|---|
| AVOCATIONAL | 19.2% | 80.8% | 8.1% | -- | 14.5% | 4.1% | 73.3% | 344 |
| BILINGUAL OCCUPATIONAL EDUCATION | 75.0% | 25.0% | -- | -- | -- | 100.0% | -- | 12 |
| CONSUMER EDUCATION | 65.4% | 34.6% | -- | -- | 34.5% | 31.6% | 33.9% | 7,500 |
| LITERACY/LANGUAGE EDUCATION: | | | | | | | | |
| Adult Basic Education | 66.7% | 33.3% | 8.4% | 1.0% | 46.8% | 14.4% | 29.4% | 1,745 |
| Americanization | 51.5% | 48.5% | 26.5% | - | -- | 14.7% | 58.8% | 340 |
| High School Equivalency | 54.8% | 45.2% | -- | .2% | 39.2% | 7.0% | 53.6% | 416 |
| CAREER SKILLS CENTER: | | | | | | | | |
| Adult Basic Education | 60.0% | 40.0% | 1.5% | .8% | 58.5% | .8% | 38.4% | 130 |
| High School Equivalency | 60.0% | 40.0% | -- | -- | 53.3% | -- | 46.7% | 30 |
| Occupational Preparation | 22.8% | 77.2% | .5% | .5% | 59.7% | .9% | 38.4% | 219 |
| Special Basic Education | 70.0% | 30.0% | -- | -- | 83.3% | 4.2% | 12.5% | 120 |
| OCCUPATIONAL EDUCATION: | | | | | | | | |
| Apprenticeship | 3.3% | 96.7% | 1.2% | 1.2% | 11.5% | 4.9% | 81.2% | 243 |
| Occupational Preparatory | 43.8% | 56.2% | 6.4% | -- | 41.6% | 4.4% | 47.6% | 550 |
| Occupational Supplementary | 46.7% | 53.3% | 3.9% | .7% | 21.6% | 6.2% | 67.6% | 306 |
| Practical Nursing (Licensed) | 94.3% | 5.7% | -- | 1.4% | 1.4% | 1.5% | 95.7% | 70 |
| SPECIAL EDUCATION: | | | | | | | | |
| Work Experience Center for the Mentally Handicapped | 42.1% | 57.9% | -- | -- | 6.7% | .6% | 92.7% | 164 |
| WORLD OF WORK/ HOUSING RENOVATION | 23.6% | 76.4% | -- | .4% | 61.6% | 5.3% | 32.7% | 263 |

Source: Occupational Education: Past, Present and Future, 1979-1980. Department of Career, Occupational and Continuing Education, Rochester City School District, p. 292.

Unlike secondary schooT participants, a higher percentage (90.6%) are disadvantaged, either economically, mentally or physically, and a far higher percentage--59.1%--of women participate. Only 35.7% are black and 22.5% are hispanic.

Adult vocational education is assisted by the presence of several colleges and universities. The Rochester Institute of Technology has provided a practical, technical education for over a hundred years, serving as a feeder to many of Rochester's large corporations. There are five state colleges and universities within proximity, Buffalo, Brockport, Geneseo, Empire State, and Monroe Community College with full-time enrollment of 33,600 and total enrollment of 49,900. While the vocational component of their education is hard to measure, their size suggests that vocational education is available.

Finally, a number of CETA programs, which we shall discuss later, provide adult vocational education opportunities.

Outcomes of Occupational Education

To evaluate the impact of vocational education on the occupational success of students is difficult for several reasons. Since those that participate in vocational education are more apt to be disadvantaged than non-participants, it is difficult to untangle the effects of training from these other characteristics. Participants are not chosen randomly, and a true experiment cannot be approximated. However, it is possible to glean some insight from summary follow-up tables, such as Table 8. This table breaks down occupational education into the four categories of secondary, adult, handicapped, and summer. Of the secondary students who complete the program, 64.1% are employed in the civilian sector, 5.2% join the military, 16.8% continue their education,

Table 8

Follow-up Summary

| | Female | Male | Total | Employed | Military | Unemp. | Education | Other |
|---|---|---|---|---|---|---|---|---|
| Secondary | 581 | 664 | 1245 | 798 | 65 | 164 | 209 | 9 |
| Adult | 445 | 1143 | 1598 | 1257 | 1 | 89 | 236 | 5 |
| Handicapped | 236 | 339 | 575 | 43 | - | 4 | 525 | 3 |
| Summer | 745 | 553 | 1298 | 169 | 7 | 18 | 1104 | - |
| Total | 2007 | 2699 | 4716 | 2267 | 73 | 275 | 2074 | 17 |

Source: Occupational Education: Past, Present and Future, 1979-1980. Department of Career, Occupational and Continuing Education, Rochester City School District, Appendix D.

and 13.2% are unemployed. This seems a fairly good sign for the program, since it is likely that this age group is a prime candidate for the excessive unemployment rates of youth. However, since the time span of the follow-up data is not indicated, the interpretation of unemployment experience is difficult.

For adults, 78.7% become employed, while 14.7% continue with school and 5.6% are unemployed. This seems a fairly good success rate, considering the extent of economic disadvantage of these participants. As might be expected, the handicapped do less well. Nearly all (91.3%) continue with schooling and only 7.5% become employed. Summer participants nearly all continue with schooling (85.1%), though 13.0% become employed and 1.5% unemployed.

Statistics are also available by the type of program and occupation skill learned; however, most categories have too few participants to be meaningful. Instead, in Table 9 we have grouped participants by occupation into two groups, those learning technical skills, such as auto repair, and those learning service skills, such as child care service. Of those in technical skills, only 10.8% were women, while for services 65.6% were women. The occupational segregation of training programs by sex is quite clear generally.

Differences were apparent between adult and secondary participants. For secondary school, 38.3% were in technical skills, while for adults 65.0% were in technical areas.

The technical participants did less well in the labor market. As for the follow-up, 61% of secondary students in technical programs became employed, while 66.0% of those in services were employed. The unemployment rate for technical trained was 16.3%, compared to 11.2% for the

Table 9

Breakdown by Occupational Training*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Secondary: | | | | | | | | |
| Technical | 30 | 447 | 477 | 291 | 39 | 78 | 68 | 1 |
| Services | 551 | 217 | 768 | 507 | 26 | 86 | 141 | 8 |
| Adult: | | | | | | | | |
| Technical | 135 | 904 | 1039 | 742 | 10 | 72 | 216 | - |
| Services | 320 | 239 | 559 | 516 | 1 | 17 | 20 | 2 |

*Technical occupational training includes automotive, carpentry, electronics, welding machine shop, etc.

Services training includes child care, general office, nursing, quantity foods, etc.

Source: Occupational Education: Past, Present and Future, 1979-1980. Department of Career, Occupational and Continuing Education, Rochester City School District, Appendix D.

service-trained. The service trained were more apt to continue schooling (18.4%) compared with the technical students (14.9%). For the adults, 71.4% of the technical trained were employed, 20.7% continued schooling, and 6.9% were unemployed. Of the service trained 92.3% were employed, 3.6% continued school, and 3.0% were unemployed. Generally, the technically skilled face a rougher post-program experience than those trained in the services. This is consistent with our earlier analysis emphasizing the lack of growth in the technical areas traditionally taught in vocational education. Contrary to the image of Rochester as a technical labor market, service areas are experiencing much faster growth.

CETA Programs

The Comprehensive Employment and Training Act of 1973 (CETA) consolidated many existing manpower training and other employment programs into a single locally-directed program. In Rochester, there are several CETA youth programs and, consistent with the CETA legislation which calls for coordination between vocational education and CETA, there are several areas of collaboration between the Rochester City School District and CETA. From the point of view of persons interviewed within the school district, the most important CETA youth program seems to be the summer youth program, which provides career development exploratory classes for youth under 16 years of age and summer employment of about thirty hours a week in nonprofit organizations for youth from 16 to 21.[34] CETA also offers for students in school an after-school work experience orientation program which runs for about ten weeks a year. Students can arrange to receive academic credit for supervised work experience. All students must meet CETA eligibility requirements pertaining to economically disadvantaged status.[35]

For adults and school drop-outs, CETA offers a variety of programs. The Rochester Career Skills Center is totally funded by CETA and is operated by the City School District. It offers unemployed and economically disadvantaged adults instruction in adult basic and high school equivalency education, and occupational training in several areas, including, especially, machinist and welding instruction.[36] A new program to train diesel mechanics, mentioned earlier, will be jointly funded by CETA and the City School District. This will be a nine-month training program preparing thirty students a year.

There are also two small programs at Monroe Community College (MCC) which are jointly funded by the city, county and state CETA agencies, with some private foundation help. One of these programs provides a kind of individualized program at MCC for high school graduates. The other program is for school drop-outs and is primarily a job motivation and placement effort.

CETA's public service employment program provides full time jobs for adults lasting a maximum of eighteen months. A number of these jobs, now threatened by the Reagan administration, have been in the City School District.

By far the most highly regarded CETA sponsored program is the Rochester Tool & Die Facility training program. Indeed, this program, which is run by private industry--specifically the local tool and die association--was cited by many persons interviewed as exemplifying precisely the kind of vocational training programs needed for Rochester's technical industry.[37] Every eight months since September 1979 this program has been producing about 95 trainees and placing approximately 90% of them in local tool and die firms, where they start out as second year

apprentices. The cost of the tool and die training program, which is totally covered by CETA, is $6,700 per student, including $105.00 weekly pay per student.

It is worth taking a close look at the characteristics of the trainees in this quite successful program, which reportedly has been cited by the Department of Labor as worthy of replication. Participants in the program must have a high school education, must be at least 18 years of age, and must meet the CETA guidelines on economic disadvantaged status. The average age of trainees is 24, about 20% are females, and about 35% are minority group members. A spokesman for this program said that he thought that industry looks to this program for employees with more maturity and motivation than they usually can find among those trained in other CETA and City School District programs. He commented that, "We just drop students who aren't trying or aren't behaving responsibly."

This short discussion of the successful tool and die training program contains a number of important implications for vocational education. Many of these implications stem from the fact that the very characteristics that contribute to the success of the program are difficult or impossible to emulate in most vocational programs as they are conventionally structured. First, the program is directly run by the industry into which the trainees will go. This not only provides an ideal connection for job placement, but also should assure that the training corresponds to the industry's desires. Second, only the motivated students are retained. Although this practice is not impossible to emulate, this kind of selectivity can be accomplished with less difficulty in private than in public sector organizations, because of the

public responsibilities and political accountability of the latter. Finally, by training mainly persons in their mid-twenties the program responds to the preference of employers for more mature workers than high school graduates. This final point is a very sore point with respect to vocational education for youth, as we shall discuss in more detail later.

To sum up, with CETA the federal government has created a means by which unconventional vocational training programs, with characteristics like the successful tool and die program, can be funded. On the other hand, as noted elsewhere, CETA programs focus their efforts on a disadvantaged clientele and thereby make a high rate of success unlikely.[38] Apart from the tool and die program, the other Rochester CETA programs appeared much less selective and far less likely to lead to permanent unsubsidized employment.

Federal Policy Effects on Rochester's Program

We have just seen that the federally funded CETA programs have made possible at least one unusual and exemplary vocational training program in Rochester. But what has been the impact of the major federal vocational education legislation passed in 1963, 1968 and 1976? To what extent has this legislation reshaped vocational education in the Rochester City School District?

We have found this a difficult question to answer, in part because of overlaps between the intent of this legislation and that of other legislation or guidelines emanating from both the federal and state level. Generally speaking, it appears to us that the main effects that have been felt are associated with the availability of additional federal funding and its important consequences for improving vocational education programs and enabling expansion of enrollments in the programs. The effects of

other things called for in the legislation, on the other hand, seem more modest.

Apart from the matter of the federal funding, most of our informants were rather vague when it came to identifying specific effects of federal policy on vocational education. One central office administrator did point out that the Vocational Education Act (VEA) of 1963 had led, in New York State, to the creation of the Board of Cooperative Educational Services (i.e., New York State's intermediate-level school districts) vocational education centers, which in turn had led the City School District to copy this model and create the part-day "annex" program in vocational education. Prior to that time, Edison Tech was strictly a full-day program and there was no middle ground between it and the vocational offerings in the regular secondary schools.

A specific federal policy effect frequently mentioned was the effort to end sexual discrimination and stereotyping in vocational education. However, several informants noted that New York State had a sexual nondiscrimination law before the federal one, although the former had no real teeth in it. Nevertheless, prior to the emphasis on ending sexual discrimination in the VEA Amendments of 1976, Edison Tech admitted its first female students about 1970. Before that time, there were no separate toilet facilities, etc., for girls at Edison.

When informants referred to the sexual nondiscrimination effort, they often seemed to have in mind Title IX of the Educational Amendments of 1972, rather than the VEA Amendments of 1976. We were told that the Office of Civil Rights (OCR) had been in the District about two years ago looking at class registers in search of any forms of discrimination. Also, OCR reportedly has looked into complaints of discrimination

in the District with respect to the handicapped. In this regard, "hazards" existing in vocational education facilities used to keep the handicapped out of occupational education in the District, but now barriers and hazards must be eliminated. In sum, progress has been made in the Rochester schools toward ending various forms of discrimination, due to a combination of federal and state efforts in this respect, but it is clear that there still is room for improvement.[39]

Another matter emphasized in the VEA Amendments of 1976 is the need for program evaluation. The Amendments provide that each state must "evaluate the effectiveness of each program within the state being assisted with funds available under this Act." To date, it does not appear that this stipulation has been met very rigorously. The New York State Education Department has just set up an evaluation office and there will be a state evaluation of Rochester's vocational education program sometime during 1981. In the past, however, the evaluation has just been the District's own self-evaluation via the annual up-dating of the five-year plan. This has involved having the professional staff set out goals, activities, and measurable objectives for each program for each year.

As noted earlier, the availability of federal funds is the major difference produced by the VEA from the point of view of persons within the City School District. As seen narrowly by a school building administrator, "the biggest impact of the federal effort in vocational education is the availability of funds to buy needed equipment." As seen broadly from the top of the system, by the director of occupational education, the federal monies are crucial for the provision of an adequate, modern program for an urban population. In this regard, however, he feels that neither the new nor the old New York State formulas for

distributing the federal vocational education monies give enough extra aid for meeting the needs entailed in serving a disadvantaged population.

The pattern of funding of vocational education in Rochester can be seen in the projected figures for 1979-1980 in Table 10. Total funding is over 10 million dollars, with 57.6 % contributed locally, 16.5% by the state, and the remaining 25.9% by the federal government. Most spending is on secondary-school programs, or 75.1% of the total. Adult programs consist of an additional 12.5%, programs for the handicapped 7.6%, and multi-level programs 4.8%.

Funding responsibility differs dramatically for each of these programs. Secondary school programs tend to be more locally supported with 66.8% from local sources, 20.6% from the state, and 12.6% from the federal government. At the other extreme are multi-level programs with 84.2% federal contribution and the rest from local sources. In the middle are handicapped programs--53.2% federal and 46.8% local--and adult programs, with 66.4% federal, 25.6% local and the rest from the state.

In Table 6, on page 27, funding patterns for secondary programs are exhibited for the years 1965 to 1979. The budget grew at 10.1% per year during this period, though some of this is a result of inflation. The growth rate of the years 1966-1974 was 14.9%, greater than the rate of 0.75 during 1974-1978, despite the fact that the inflation rate was so much higher during the latter period. Spending for vocational education has tapered off its growth, and is actually falling in real terms.

The contribution of the locality has fallen off, with greater involvement by the federal government in the years after the VEA Amendments of 1968. During the years 1965-1970, the local contribution averaged

Table 10

Budget Proposed for Occupational Education for 1979-1980

| | Federal Funds | State Funds | Local Funds | Total Funds |
|---|---|---|---|---|
| Secondary | $958,682 | $1,663,249 | $5,068,700 | $7,590,631 |
| Adult | 841,527 | 100,966 | 324,586 | 1,267,079 |
| Handicapped | 406,733 | -- | 357,197 | 763,930 |
| Multi-Level | 410,488 | -- | 77,294 | 487,782 |
| Totals | $2,617,430 | $1,664,215 | $5,827,777 | $10,109,422 |

Source: Occupational Education: Past, Present and Future, 1979-1980. Department of Career, Occupational & Continuing Education, Rochester City School District, p. 383.

77.6%, but fell to an average of 66.6 % during the years 1970-1979. The policies now being pursued by the Reagan administration make it appear that federal funding will decline. Thus, unless the state will make up the difference, the local contribution most likely will have to be raised, probably necessitating further development and enhancement of the relationships between the Rochester City School District and citizens and business and industrial leaders in Rochester.

## Conclusions and Policy Recommendations

It is useful to begin this concluding section by reviewing the conclusions that informed participants in vocational education in Rochester themselves have arrived at concerning what is needed to improve the operation of the system. When we asked persons we interviewed what they thought vocational education in Rochester most needed, the most surprising answer we received was expressed in one word, "kids." As it turns out, this answer is related to many of the other needs or problems that informants identified.

The keystone of the system, Edison Tech, faces a shortage of "kids" for a variety of reasons. As we noted earlier, competency-based graduation requirements now result in large numbers of students having to take remedial classes on top of their regular academic courses, leaving insufficient time in the school day for participation in the part-day (half-day) program at Edison. Of course, these remedial classes actually should be viewed as part of the solution rather than as a problem, since the skills they teach are also necessary for employment. What needs to be done, as several persons stressed, is to extend the rather short school day, making better use of school building facilities and opening

up the opportunity for students to take both academic-remedial instruction and vocational instruction. Although flexible scheduling of students and teachers might make this feasible at a minimum of additional cost, there clearly would be new costs attached to this idea.

Because the need to extend the school day is tied to the reality of large numbers of students being tied up in remedial classes, due to the increasing percentage of Rochester's students who are educationally disadvantaged, this need and the cost that would be entailed relate to the view of the Supervising Director of Occupational Education that more financial aid is needed in central cities to cover the unusual costs of educating large numbers of disadvantaged students.

Another factor that many people mentioned, that appears related to the shortage of "kids" in vocational education, is the perennial problem of the image of vocational education as a "dumping ground" for less able and less motivated students. This image presumably causes some students (or their families) who "need" vocational education to avoid it. Informants suggested that funds need to be made available for an intensive publicity campaign to improve the image of occupational education or, put another way, to improve public understanding of the role and place of occupational education. Somewhat related to this is a perceived need for more and better trained guidance counselors to inform and counsel students about the career and occupational education alternatives open to them.[40] Improved counseling, and efforts to make vocational education options more attractive and better known, might also help combat the problem of educators attempting to hold on to students to protect the enrollments of their buildings in the face of declining enrollments.

Another perceived need, which, if met, might help make the Rochester

schools' vocational education program more attractive to students, is for more by way of vocational offerings for ninth and tenth graders. As noted earlier, the part-day program at Edison mainly serves eleventh and twelfth graders. Greater offerings for younger students might aid in the recruitment process.

If vocational educators need students, students ultimately need jobs. In this regard, one of the greatest perceived needs is for incentives to encourage employers to hire young workers. A number of informants spoke of how the large firms in the area tend to avoid hiring young workers. One large company allegedly will hire no one under twenty-three years of age. As one person put it,

> Just try to get an 18-year old into one of the IMC jobs! The IMC firms want workers 22 years old or older. The reality is that 18-year olds spend some years shifting from one entry level job to another. Tech graduates get jobs faster, more readily, but still entry level jobs. After three years of machine shop at Madison High, kids go into an apprenticeship program the same as kids with no previous training. So, what is the payoff of vocational education? It's not immediate, but a longer term payoff.

Indeed, trying to determine the payoff, immediate or long term, of vocational education is a tricky proposition. In moving toward our own conclusions, we have become increasingly aware of how difficult it is to fairly evaluate a vocational education program. In fact, in the course of our interviews one of the themes that emerged is the pet peeve of vocational educators that people all too often try to assess vocational programs in terms of whether students leaving vocational schools go into exactly the kind of occupation for which they were trained. In reality, vocational graduates frequently go into related but different types of occupations.

Thus, while about 95% of Edison's graduates get jobs, a large number of them get jobs outside the field they trained for. The fair way to evaluate vocational education, according to the educators we interviewed, is to ask the question, "Do students learn in a vocational school job-holding skills and skills that are transferrable to other kinds of occupations?" As the principal of Edison Tech summed up the problem, "Some manufacturers want kids trained, not educated. But then they turn around and complain if the kids lack the kinds of skills necessary to be promotable. You can't have it both ways."

The argument in favor of generalizeable skills raises the issue of specific versus general skill training in vocational education and, further, brings up the question of whether the skills needed could actually be taught in regular high schools at substantially less cost than is incurred in supporting sophisticated technical schools, such as Edison. On the issue of specific versus general skill training, Norton Grubb has pointed out that there is an incentive that explains the tendency of vocational education programs (in general, not necessarily in Rochester) to emphasize specific rather than general skills, even though less specific training may reduce unemployment caused by inappropriate, obsolete or improper training:

> Specific skills are clearly distinguishable from the skills taught in the academic programs of schools, and when they result in employment the link between work and school is clear and unambiguous. General skills, on the other hand, are likely to be less distinguishable from the academic program (even as they are defined within the context of vocational education). When they result in increased employment, the relationship between school and work is unclear, and graduates from such programs may well find jobs within areas which appear unrelated to their field of training. Thus, vocational education has always been pressed toward more specific skill training, both to distinguish what it does from the academic program and to establish the least ambiguous relationship between training and subsequent employment.[41]

The press for specific skill training clearly is reinforced by the demand in Rochester for workers with highly technical skills. Yet, how realistic is an effort to train high school students for highly technical jobs? Our findings have revealed a substantial gap between the rhetoric of vocational education for technical industry and the reality of the employment opportunities for young workers in Rochester. Significantly, there are problems with respect to both highly and moderately technical employment.

To begin with, it appears that Rochester's technical industry hires, for the most part, workers whose desired entry level skills tend to be above those that can be learned at Edison. Further, as a practical matter, Edison and other components of Rochester's vocational education system can produce only a small number of graduates with the needed entry skills. To make the situation still more difficult, it is claimed, as we have seen, that many firms avoid hiring young workers.

Rochester's technical industry thus desires both highly skilled and older workers. This preference suggests that post-secondary vocational training is more appropriate than secondary level training, and this is entirely consistent with the characteristics of the successful CETA funded tool and die training program described earlier. However, the sophisticated skills required by many jobs in Rochester's technical industries, necessitating national searches for manpower, will remain difficult to attain whatever training programs are available, so the supply and demand for the more easily developed moderately skilled workers becomes an important consideration.

Here, our analysis of the data available on labor market trends in Rochester revealed that growth is slow in the traditional technical areas

of vocational education, while much faster growth is occurring in the area of service jobs. This development, which is inconsistent with the technical image of Rochester's labor market, seems to have caught vocational educators off guard. Too many students are still being channeled into traditional technical areas, where job placement will be difficult, when in fact there is real growth elsewhere, in the service area.

The overall picture that emerges from our analysis is one that calls for a more realistic assessment of Rochester's labor market--especially as it relates to young workers--and more realistic expectations regarding how much can be learned in vocational education programs, particularly at the secondary level. Viewing Rochester as mainly a technical labor market, as most people seem to do, obscures the other parts of the market where young workers can get jobs. Frequent emphasis on the technical character of the market also may lead to neglect of the need to closely observe and analyze actual market trends and to make necessary adjustments of vocational eduation programs.

Vocational education at the secondary level really cannot be expected to close the gap between Rochester's highly technical industries and its increasingly disadvantaged central city population. At most it can help narrow the gap. But what it can particulary accomplish is to help young citizens in Rochester prepare for attainable, non-menial jobs in less technical and service areas. At the same time, efforts--such as the commendable PRISM program--should be continued to interest, and facilitate the entry of, minority youth into training for technical occupations such as engineering. This training, however, clearly culminates at the post-secondary level.

In conclusion, our general recommendation is to urge a rethinking of vocational education in Rochester with an emphasis on matching skill preparation with the areas where jobs are both growing and realistically available to young workers. This will require much more attention to the systematic collection and evaluation of relevant data on labor market trends and the placement and career patterns of young workers.

More specifically, we recommend, first, that efforts be made to improve the image of vocational education and to guard against the "dumping ground" problem. Second, we believe that the school day needs to be expanded to enable more students to benefit by vocational education opportu..ities. Third, it is essential to correct the mismatch in flows of students between areas of preparation and areas of growth in the local labor market. More realism is needed about the character of Rochester's labor market and its implications for young workers. Fourth, to guard against the problem of mismatch, systematic data collection, analysis, and evaluation are essential. Fifth, the counseling area needs to be strengthened and, relatedly, segregation by sex in occupational training needs to be further reduced. Sixth, it appears that post-secondary technical training programs could be profitably expanded, emulating the model provided by the successful tool and die training program. Seventh, since federal funds may dry up, the school district probably should minimize commitments to expensive capital-intensive programs. Eighth, linkages with business and industry should be enhanced and expanded; in particular, more apprenticeship and internship programs are desirable. Finally, cost-benefit analysis of the different types of programs and of alternative facilities is needed.

## NOTES

1. Data for this study were obtained from documents and numerous interviews with persons associated with various aspects of vocational education in Rochester. Those interviewed within the City School District included secondary school principals; the principal and assistant principal of Edison Tech; the Supervising Director and Director of the Department of Career, Occupational & Continuing Education; other central office personnel; and the Director of Guidance. Among those interviewed outside the school system were the president of the Industrial Management Council, several members of the Advisory Council for Occupational Education, the Director of the Office of CETA Administration for the City of Rochester, and representatives of privately operated vocational training programs.

   A variety of vocational education and training programs, many of which are quite small, exist in Rochester but are not reported on here. This study focuses on the programs that our interviewees identified as being the most substantial and significant programs serving the city. For brief descriptions of the other programs, see Occupational Education: Past, Present, and Future, 1979-1980, Department of Career, Occupational & Continuing Education, Rochester City School District, pp. 79-99 (hereinafter referred to as O.E.P.P.F.).

2. IMC 1979 Annual Report, published by the Industrial Management Council of Rochester, New York, Inc., January 28, 1980, p. 7.

3. A.F. Ehrbar, "Rochester's Ten Most Powerful Persons," Rochester Democrat and Chronicle, April 14, 1974.

4. "Does Anyone Run Rochester?", Rochester Times Union, March 6, 1980.

5. Earlier research on attempts to bring about reform in the Rochester schools documents the problems minority groups have faced, due in part to the small size of the black middle class leadership pool within the city and, more broadly, to a generalized fragmentation and suburbanization of the overall civic leadership pool. See William L. Boyd and Florence Seldin, "The Politics of School Reform in Rochester, New York," Education and Urban Society, 7, 4 (August 1975), pp. 439-463.

6. Statistical Abstract of the United States, 1973, 94th edition, Washington, D.C.: U.S. Government Printing Office, pp. 890-910.

7. IMC 1979 Annual Report, p. 2.

8. Ibid.

9. Ibid.

10. Ibid.

11. O.E.P.P.F., pp. 10-11.

12. Ibid., pp. 11-12.

13. Ibid., pp. 16-18.

14. Ibid., p. 1.

15. Ibid., p. 2.

16. R. Nathan and C. Adams, Revenue Sharing: The Second Round. Washington, D.C.: The Brookings Institution, 1977, pp. 89, 91. Statistical Abstract, op. cit., pp. 890-910.

17. Statistical Abstract, op. cit., p. 903.

18. 1970 Census, New York. "Population Characteristics," Part 34, Vol. 1, Table 83. Washington, D.C.: U.S. Bureau of the Census.

19. O.E.P.P.F., p. 382.

20. Ibid., p. 378

21. Ibid., p. 377.

22. In October 1976, the Rochester City School District had 58 schools: 44 regular elementary schools, 2 alternative elementary schools, 2 regular and 1 alternative junior high, 6 junior/senior high schools (grades 7-12), 1 senior high school (grades 9-12), and 2 alternative senior high schools, one of which was Edison Tech. Several elementary schools have been closed since that time, due to declining enrollments.

23. Annual Statistical Report, Vol. 1, "Enrollment, 1970-1976," Department of Planning, Research & Evaluation, Rochester City School District, November, 1977, p. 7.

24. O.E.P.P.F., p. 210.

25. Ibid., pp. 373, 376.

26. In 1978-1979, Edison enrolled 1,060 or 12.1% of the District's 8,763 students in grades 9-12. O.E.P.P.F., p. 373.

27. For documentation of this phenomenon elsewhere, see Robert Crowson and Cynthia Porter-Gehrie, "The Discretionary Behavior of Principals in Large-City Schools," Educational Administration Quarterly, 16, 1 (Winter 1980), pp. 45-69.

28. From 1971-1972 to 1978-1979, the District reported annex enrollments ranging from 991 to 1,786 students. O.E.P.P.F., p. 208.

29. Significant discrepancies between "actual" and "official" figures have been found in studies of many cities and school districts. Consequently, we do not intend to suggest here that the Rochester City

School District is any less (or more) accurate in this regard than other large public organizations.

30. District personnel use the terms "vocational" and "occupational" education interchangeably, but favor the latter since the former "makes you sound old-fashioned."

31. O.E.P.P.F., pp. 379-380, 388-409.

32. Ibid., pp. 379-380.

33. Ibid., pp. 247-248.

34. The 1979 CETA summer occupational training program proposal requested funds to serve 358 youth from 14-20 years of age. O.E.P.P.F., p. 54.

35. The City School District was awarded $219,000 in CETA funds for an employment training program for 400 youth during the 1978-1979 school year. O.E.P.P.F., p. 54.

36. In 1978-1979, the City School District received $530,000 for occupational training of 500 unemployed, economically disadvantaged Rochester adults. O.E.P.P.F., p. 55.

37. When we asked in this case about linkages to labor unions, we were told once again that, "Rochester isn't a union town. None of the some 110 tool and die shops here are unionized."

38. See Paul E. Peterson and Barry G. Rabe, "Career Training or Education for Life: Dilemmas in the Development of Chicago Vocational Education," Paper prepared for the Vocational Education Study Group of the National Institute of Education, March 1981.

39. See Tables 4, 5, and 7 presented earlier.

40. There may be a need also, as one informant believed, for more Spanish speaking guidance counselors to help guide the increasing number of Hispanic students to the most appropriate educational opportunities. As noted earlier, Hispanics continue to be under-represented at Edison Tech.

41. W.N. Grubb. "The Phoenix of Vocational Education: Implications for Evaluation," in National Institute of Education, The Planning Papers for the Vocational Education Study, Washington, D.C.: U.S. Government Printing Office, 1979, p. 208.